

What is claimed is:

1. (Original) A method of heat drilling holes into ice, comprising the steps of:
  - 5 forming a vertical pre-bore hole (9) of small diameter with a meltwash drill head;
  - positioning a melt-wash dril head (1) of larger diameter on the pre-bore hole (9);
  - heating water as a heat carrier on the surface of the ice;
  - controlled pumping under pressure of the hot water (4) into the rinse-wash
  - 10 drill head;
  - deflecting the hot water (4) in the range of the melt-wash drill head (1) into a radial plane (5);
  - washing the hot water (4) as a sharp disk-like jet (6) circumferentially radially against the wall of the bore hole (7) whereby the hot water (4) is mixed
  - 15 with the melt water (10) and pressed into the direction of the surface of the ice;
  - lowering of the melt-wash drill head (1) for froming a main bore hole (19);
  - and
  - dissipating by seepage or pumping the hot water (4) pressed in the direction of the surface of the ice and mixed with the melt water (10).
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2. (Original) The method of claim 1,  
characterized by  
the water being heated to temperatures of up to 90 °C.
- 25 3. (Currently amended) The method of one of claims 1,  
characterized by  
the hot water (4) being pumped at pressures of up to the range of  $10^7$  Pa.
- 30 4. (Currently amended) The method of claim1,  
characterized by

a cavern being washed out with the wash water at a depth of up to 50 meters and the wash water mixed with the melt water (10) being pumped into it for dissipation by seepage.

5 5. (Currently amended) The method of claim 1,  
characterized by  
a cylindrical guide element (29) being inserted by a cable (32) into the main bore  
hole (19) in the transition range between the lower ide edge (30) and the sea  
(31).

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6. (Original) An apparatus for practicing a method of heat drilling holes into ice  
by a

drill head heatable by hot water as well as a supply and hoisting and lowering  
crane device, especially in accordance with one of claims 1 to 5,

15 characterized by  
the drill head being structured as a combination melt-wash drill head (1) provided  
at its upper end with an axial water input (2) and at its lower end with a  
hemispherical melt section (3) as well as above the melt section (3) but below  
the water input (2) with a narrow azimuthally circumferential annual gap (5)  
20 connected to the water input (2) as the water output, the entire melt-wash drill  
head (1) being formed of a material of good heat conductivity.

7. (Original) The apparatus of claim 6,  
characterized by

25 the azimuthally circumferential annular gap (5) being of a width in the range of a  
millimeter.

8. (Currently amended) The apparatus of claim 6,  
characterized by

30 the material of good heat conductivity being copper.

9. (Currently amended) The apparatus of claim 6,  
characterized by  
the melt-wash drill head (1) being hollow in the range below the annular gap (5)  
and a plurality of radial vanes (24) being connected with the annular gap (5) by  
5 large surfaces.

10. (Currently amended) The apparatus of claim 6,  
characterized by  
the melt-wash drill head (1) being constructed of a plurality of hydraulically tightly  
10 clamped together radial layers (25).

11. (Currently amended) The apparatus of claim 6,  
characterized by  
a hose (17) for feeding the hot water (4) to the axial water input (4) and a cable  
15 for hoisting and lowering the melt-wash drill head (1) form a unit.

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